

ABSTRACT

An organic electroluminescent device with the feature of three-wavelength luminescence is provided. The device includes a hole transporting layer, an electron blocking layer, a first host material layer, a second host material layer, a hole blocking layer, and an electron transporting layer placed between an anode and a cathode in turn. In which, the first host material layer has a first guest luminous substance mixed therein for projecting a first color light source (B), while the second host material layer correspondingly has a second guest luminous substance and a third guest luminous substance mixed therein for projecting a second color light source (G) and a third color light source (R), respectively, under the effect of an external bias voltage, wherein said second guest luminous substance or said third guest luminous substance may be a phosphorescence substance. Thus, not only a continuously full-band, full-colored light source featuring three-wavelength may be acquired directly by means of the combination of RGB colors, but also an effective utilization of phosphorescence substance and thus significantly raised luminescence efficiency may be obtained.